**LESSON PLAN**

**Introduction to Mendelian Inheritance**

|  |  |
| --- | --- |
| **Subject/Course:** Grade 11 Academic SBI3U | **Date:** January 10th, 2012 |
| **Concept:** Introduction to Mendel | **Time Period:** 75 min. |

|  |
| --- |
| **BIG IDEA:**   * Mendel is the “father of genetics” and has developed a model that explains inheritance patterns |

|  |
| --- |
| **LEARNING GOALS:**   * To explore and describe in detail Mendel’s experiment with pea plants. * To explain the importance of Mendel’s model and how it contributed to the advancement of hereditary theories * To explain the concepts such as genes, alleles, dominance and recessiveness based based on Mendelian laws of inheritance. * To describe and compare how recessive and dominant traits are passed between successive generations. * Compare a homozygous trait to a heterozygous trait. * Identify traits that are either dominant or recessive. |

|  |
| --- |
| **OVERALL EXPECTATIONS:**   * D1. Evaluate the importance of some recent contribution to our knowledge of genetic processes. * D3. Demonstrate an understanding of concepts and processes related to the transmission of hereditary characteristics. |

|  |
| --- |
| **SPECIFIC EXPECTATIONS:**   * D3.2 Explain the concepts of DNA, genes, chromosomes, alleles, mitosis, and meiosis and how they account for the transmission of hereditary characteristics according to Mendelian laws of Iinheritance. * D3.3. Explain the concepts of genotype, phenotype, dominance, incomplete dominance, codominance, recessiveness, and sex linkage according to Mendelian laws of Inheritance. |

|  |
| --- |
| **PRIOR KNOWLEDGE**   * Students have an understanding of the process of mitosis and meiosis and how chromosomes are transmitted to. * Through reading the article, students should have prior knowledge on Mendel’s biography and his overall contribution to genetic research. |

|  |
| --- |
| **REQUIRED MATERIALS**   * Mendel’s articles (approximately 10 packages, 1 for each group) * Chart paper & Markers * Homework Question Sheets for the follow up activity |

**STEP BY STEP DESCRIPTION:**

|  |  |  |
| --- | --- | --- |
| **Step** | **Details** | **Time (min)** |
| **Minds On**  *Classroom Discussion*  *Assessment for learning* through classroom discussion | * Put students into designated groups of four *(students will be paired according to academic abilities, 2 strong students and 2 weaker students in each group)* * Project the following video clip on Mendel’s Biography: http://www.youtube.com/watch?v=mz8hxfjbsRk&feature=related * Ask students to summarize key points from the video clips and the reading they had for homework found in Appendix B. * Ensure that all the key points outlined in the “teachers notes” (Appendix A) are mentioned. | 10 min. |
| **Activity**  *Group work*  *Assessment as learning,* based on students understanding teacher will guide next steps. | * Distribute a package with Mendel’s articles and questions to each group. * Explain to students that for every articles they will be given 10 minutes to read and answer the questions. * After reading the first article (10 min.) the teacher will announce “switch” and all of the students will switch to the next article and receive another 10 minutes to do the same. * This procedure will be repeated until all 4 articles have been read. * Teacher will walk around to the room to ensure that every student is on task and answer any questions if needed. | 40 min. |
| **Consolidation**  *Classroom Discussion*  *Assessment for learning,*through classroom discussion. | * Go through each article with the students and take up the assigned questions. * For each article verbally ask students additional questions outlined in the “Teacher Notes” in Appendix A, in order to ensure that every student understood the experiment. * Once all of the articles have been thoroughly explained by the students, discuss the 4 main concepts that Mendel’s experiment explained. (found in “Teacher Notes” appendix A) * Write the 4 concepts on a chart paper and explain to students that they will be referring to these concepts throughout the genetics unit. | 25 min. |

|  |
| --- |
| **FOLLOW-UP ACTIVITY:**   * Completion of Homework Sheet |

|  |
| --- |
| **ASSESSMENT *FOR* AND *AS* LEARNING:**   * Informal assessment will take place throughout the delivery of this lesson; using “thumbs-up” and other checks to confirm student comprehension of the concepts. * Informal assessment will also take place during the group work activity. * The following day students will self-assess their homework question sheet, which will enable them to monitor their learning progress and gauge their level of understanding. * These concepts will later be evaluated (assessment of learning) part way through the unit in the quiz. |